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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/000,208 | 10/23/2001 | Bharath Rangarajan | E0819 | 9133 |

7590 01/14/2004
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EXAMINER

LAZOR, MICHELLE A

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1734

DATE MAILED: 01/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/000,208

Applicant(s)

RANGARAJAN ET AL

Examiner

Michelle A Lazor

Art Unit

1734

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 14-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Claims 1 – 13 in paper received 11/17/03 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 5 – 9, and 11 – 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitano et al. (U.S. Patent No. 6371667) in view of Tateyama et al. (U.S. Patent No. 5965200).

Regarding Claims 1, 8, 9, and 13, Kitano et al. disclose a system comprising a reservoir (61) containing a resist solution (column 5, lines 24 – 32), and a nozzle (N_1) in fluid communication with the reservoir; wherein the nozzle is movable between first and second positions; in the first position, the nozzle is positioned to dispense liquid from the reservoir onto a substrate; and in the second position the nozzle is positioned to dispense liquid from the reservoir into a return line (Figures 24 – 27; column 9, line 66 – column 10, line 25). Kitano

Art Unit: 1734

does not specifically speak to having the return line, which is considered to flow into a tank for storage, being in fluid communication with the reservoir (column 10, lines 47 – 54). However, Tateyama et al. disclose immediately recycling the surplus coating material along with fresh coating material (Figure 2; column 5, line 65 – column 6, line 11). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to connect the return line or storage tank to the reservoir to streamline the process, increase efficiency, and use the resist coating solution as it is needed while operating the apparatus.

Regarding Claims 5 and 6, Kitano et al. disclose the nozzle to have a tip approximately in the shape of a truncated cone, wherein the tip has an orifice on the truncated end, and a circumference of the cone at its base that is considered to be at least about 10 times a circumference of the cone where it is truncated (Figure 4).

Regarding Claim 7, Tateyama et al. disclose using a trap or an impurity removing mechanism (52) in the return line (column 5, line 65 – column 6, line 11). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a filter in the return line to remove any contaminants which could potentially be added into the coating material.

Regarding Claims 11 and 12, Kitano et al. disclose a pump that pumps fluid from the reservoir to the nozzle (column 5, lines 49 – 54), but do not disclose a fluid from the return line which is considered able to flow into the reservoir by the action of gravity. However, Tateyama et al. teach a fluid from the return line which is considered able to flow into the reservoir by the action of gravity (Figure 2; column 6, lines 3 – 11). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the action of gravity for the flow of

Art Unit: 1734

the return line into the reservoir to minimize operational costs and avoid having to turn on and off a pump while changing substrates to be coated.

4. Claims 2, 3, and 10 – 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitano et al. and Tateyama et al. as applied in Claim 1 above, in view of Akimoto et al. (U.S. Patent No. 5938847).

Regarding Claim 2, Kitano et al. and Tateyama et al. disclose all the limitations of Claim 1, but do not disclose the return line to have a coupling with a shape complementary to that of the nozzle and the nozzle which is fit into the coupling when the nozzle is in the second position. However, Akimoto et al. disclose the return line to have a coupling with a shape complementary to that of the nozzle and the nozzle which is fit into the coupling when the nozzle is in the second position (Figure 2; column 8, lines 55 – 67 and column 10, lines 37 – 44). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have a coupling with a shape complementary to that of the nozzle since it is a conventional design, and also, in order to have a close fit with the nozzle and avoid any contamination of the coating material dispensed through the nozzle while in the second position.

Regarding Claim 3, Kitano et al. disclose the reservoir to be below the return line (Figures 4 and 25 – 27).

Regarding Claims 10 – 12, Kitano et al. and Tateyama et al. disclose a pump that pumps fluid from the reservoir to the nozzle (Kitano et al. column 5, lines 24 – 32), but do not disclose the return line to be closed when the nozzle is in the first position and a fluid from the return line which is considered able to flow into the reservoir by the action of gravity. However, Akimoto et al. disclose the return line to be closed when the nozzle is in the first position and a fluid from

Art Unit: 1734

the return line which is considered able to flow into the reservoir by the action of gravity (column 10, lines 45 – 54). Although the preferred embodiment discloses using a pump for the drain pipe, flow by action of gravity is not excluded. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to close the return line when the nozzle is in the first position to avoid contamination of the resist receptacle (51) and it would have been obvious to use the action of gravity for the flow of the return line into the reservoir to minimize operational costs and avoid having to turn on and off a pump.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitano et al. and Tateyama et al. as applied in Claim 1 above, in view of Tholome (U.S. Patent No. 4785760).

Kitano et al. and Tateyama et al. disclose all the limitations of Claim 1, but do not disclose the reservoir to have a port out which gas released from liquid in the reservoir is exhausted. However, Tholome discloses the reservoir to have a port out which gas released from liquid in the reservoir is exhausted (Figure 6; column 6, lines 36 – 52). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a reservoir with a port out wherein gas released from liquid in the reservoir is exhausted in order to facilitate filling of the tank (column 6, lines 38 – 39).

Response to Arguments

6. Regarding the rejection of Claim 1 under 35 U.S.C. §103(a), the Examiner disagrees with the Applicant. The apparatus disclosed by Kitano et al. and modified by Tateyama et al., is considered to include recycling means connected to a return line or storage tank, which is in turn connected to a reservoir to streamline the process, increase efficiency, and use the resist coating

Art Unit: 1734

solution as it is needed while operating the apparatus. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., prevention of the formation of resist residues on the dispense head; addressing the issue of occluded dispense head orifices caused by resist drying on the dispense head; and minimizing dissipation and depletion of the volatile solvent base atmosphere) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In addition, in response to applicant's argument that it is highly impractical with respect to fast drying resists suspended in volatile solvent bases to recover said resist solutions, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

Art Unit: 1734

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

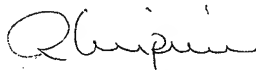
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle A Lazor whose telephone number is 571-272-1232. The examiner can normally be reached on Mon - Thurs 6:30 - 4:00, Fridays 6:30 - 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



MAL
1/6/04



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